In The Claims

1. (currently amended) A layered catalyst composite comprising a first layer and a second layer:

(a) the first layer comprising a first support, a NOx sorbent component, and a first platinum component; and

(b) the second layer comprising a second support and a SOx sorbent component, ~~wherein the SOx sorbent component is~~ selected from the group consisting of $MgAl_2O_4$, MnO, MnO_2, and Li_2O, wherein the SOx sorbent component has a higher free energy of formation at 350°C than the NOx sorbent component.

2. (original) The layered catalyst composite as recited in claim 1, wherein the first and second supports are the same or different and are compounds selected from the group consisting of silica, alumina, and titania compounds.

Claim 5 (canceled).

Claim 7 (canceled).

Claim 8 (canceled).

9. (currently amended) The layered catalyst composite as recited in claim 1 8, wherein the SOx sorbent component is Li_2O.

20. (original) The layered catalyst composite as recited in claim 1, wherein the second layer comprises from about 0.03g/in3 to about 2.4g/in3 of the SOx sorbent component.

21. (original) The layered catalyst composite as recited in claim 20, wherein the second layer comprises from about 0.3g/in3 to about 1.8g/in3 of the SOx sorbent component.

29. (currently amended) The layered catalyst composite as recited in claim 1, comprising:

(a) in the first layer;

(i) from about 0.15g/in3 to about 2.7g/in3 of the first support;

(ii) at least about 1g/ft3 of the first platinum component;

(iii) at least about 1g/ft3 of a first platinum group metal component other than platinum;

(iv) from about 0.025g/in3 to about 0.7g/in3 of the a NOx sorbent component selected from the group consisting of alkaline earth metal oxides, alkali metal oxides, and rare earth metal oxides; and

(v) from about 0.025g/in3 to about 0.7g/in3 of a first zirconium component; and

(b) in the second layer;

(i) from about 0.15g/in3 to about 2.7g/in3 of the second support;

(ii) from about 0.3g/in3 to about 1.8g/in3 of the SOx sorbent component;

(iii) at least about 1g/ft3 of a second platinum group component;

(iv) at least about 1g/ft3 of a second platinum group metal component other than platinum; and

(v) from about 0.025g/in3 to about 0.7g/in3 of a second zirconium component.

34. (currently amended) An axial layered catalyst composite comprising an upstream section and a downstream section:

(1) the downstream section comprising:

(a) a downstream substrate; and

(b) a first layer on the downstream substrate, the first layer comprising a first support, a NOx sorbent component, and a first platinum component;

(2) the upstream section comprising:

(a) an upstream substrate; and

(b) a second layer on the upstream substrate, the second layer comprising a second support and a SOx sorbent component, ~~wherein the SOx sorbent component is~~ selected from the group consisting of $MgAl_2O_4$, MnO, MnO_2, and Li_2O, wherein the SOx sorbent component has a higher free energy of formation at 350°C than the NOx sorbent component.

Claims 39-41 (canceled).

42. (currently amended) The axial layered catalyst composite as recited in claim 34 ~~41~~, wherein the SOx sorbent component is Li2O.

48. (currently amended) The axial layered catalyst composite as recited in claim 34, comprising:

(a) in the first layer;

(i) from about 0.15g/in3 to about 2.0g/in3 of the first support;

(ii) at least about 1g/ft3 of the first platinum component;

(iii) at least about 1g/ft3 of a first platinum group metal component other than platinum;

(iv) from about 0.025g/in3 to about 0.5g/in3 of the a NOx sorbent component selected from the group consisting of alkaline earth metal oxides, alkali metal oxides, and rare earth metal oxides; and

(v) from about 0.025g/in3 to about 0.5g/in3 of a first zirconium component; and

(b) in the second layer;

(i) from about 0.15g/in3 to about 2.0g/in3 of the second support;

(ii) from about 0.3g/in3 to about 1.8g/in3 of the SOx sorbent component;

(iii) at least about 1g/ft3 of a second platinum group component;

(iv) at least about 1g/ft3 of a second platinum group metal component other than platinum; and

(v) from about 0.025g/in3 to about 0.5g/in3 of a second zirconium component.

60. (original) A radial layered catalyst composite comprising a bottom layer, a first middle layer, and a top layer:

(a) the bottom layer comprising:

(i) a first support;

(ii) a first platinum component;

(iii) a first NOx sorbent component selected from the group consisting of cesium components, potassium components, and cerium components; and

(b) the first middle layer comprising:

(i) a second support;

(ii) a second SOx sorbent component which is selected from the group consisting of BaO and MgO; and

(c) the top layer comprising:

(i) a third support;

(ii) a third SOx sorbent component which is MgAl2O4.

62. (original) The radial layered catalyst composite as recited in claim 60, wherein the second SOx sorbent component in the first middle layer is BaO.

63. (original) The radial layered catalyst composite as recited in claim 60, wherein the second SOx sorbent component in the first middle layer is MgO.

106. (currently amended) A method of forming a layered catalyst composite which comprises the steps of:

(a) forming a first layer comprising:

(i) a first support; ~~and~~

(ii) a NOx sorbent component; ~~a first platinum component;~~ and

(iii) a first platinum component; and

(b) coating the first layer with a second layer comprising:

(i) a second support; and

(ii) a SOx sorbent component~~, wherein the SOx sorbent component is~~ selected from the group consisting of $MgAl_2O_4$, MnO, MnO_2, and Li_2O, wherein the SOx sorbent component has a higher free energy of formation at 350°C than the NOx sorbent component.

109. (currently amended) A method of forming a layered catalyst composite which comprises the steps of:

(a) combining a water-soluble or dispersible first platinum component, a NOx sorbent component, and a finely divided, high surface area refractory oxide with an aqueous liquid to form a first solution or dispersion which is sufficiently dry to absorb essentially all of the liquid;

(b) forming a first layer of the first solution or dispersion on a substrate;

(c) converting the first platinum component in the resulting first layer to a water-insoluble form;

(d) combining a water-soluble or dispersible SOx sorbent component, wherein the SOx sorbent component is selected from the group consisting of $MgAl_2O_4$, MnO, MnO_2, and Li_2O, wherein the SOx sorbent component has a higher free energy of formation at 350°C than the NOx sorbent component, and a finely divided, high surface area refractory oxide with an aqueous liquid to form a second solution or dispersion which is sufficiently dry to absorb essentially all of the liquid;

(e) forming a second layer of the second solution or dispersion on the first layer; and

(f) converting the second platinum component in the resulting second layer to a water-insoluble form.